Supplementary Material

Synthesis and characterization of NiCo-X (X= OH, S, Se, P) nanodiscs and comparison of their electrocatalytic performances in electrochemical sensing platform

Somayeh Farokhi, Mahmoud Roushani*, Hadi Hosseini

Department of Chemistry, Faculty of Sciences, Ilam University, Ilam, P. O. BOX. 69315-516, Iran

* Corresponding author :Tel/fax: +98 84 32227022

E-mail address: m.roushani@ilam.ac.ir and mahmoudroushani@yahoo.com (M. Roushani)

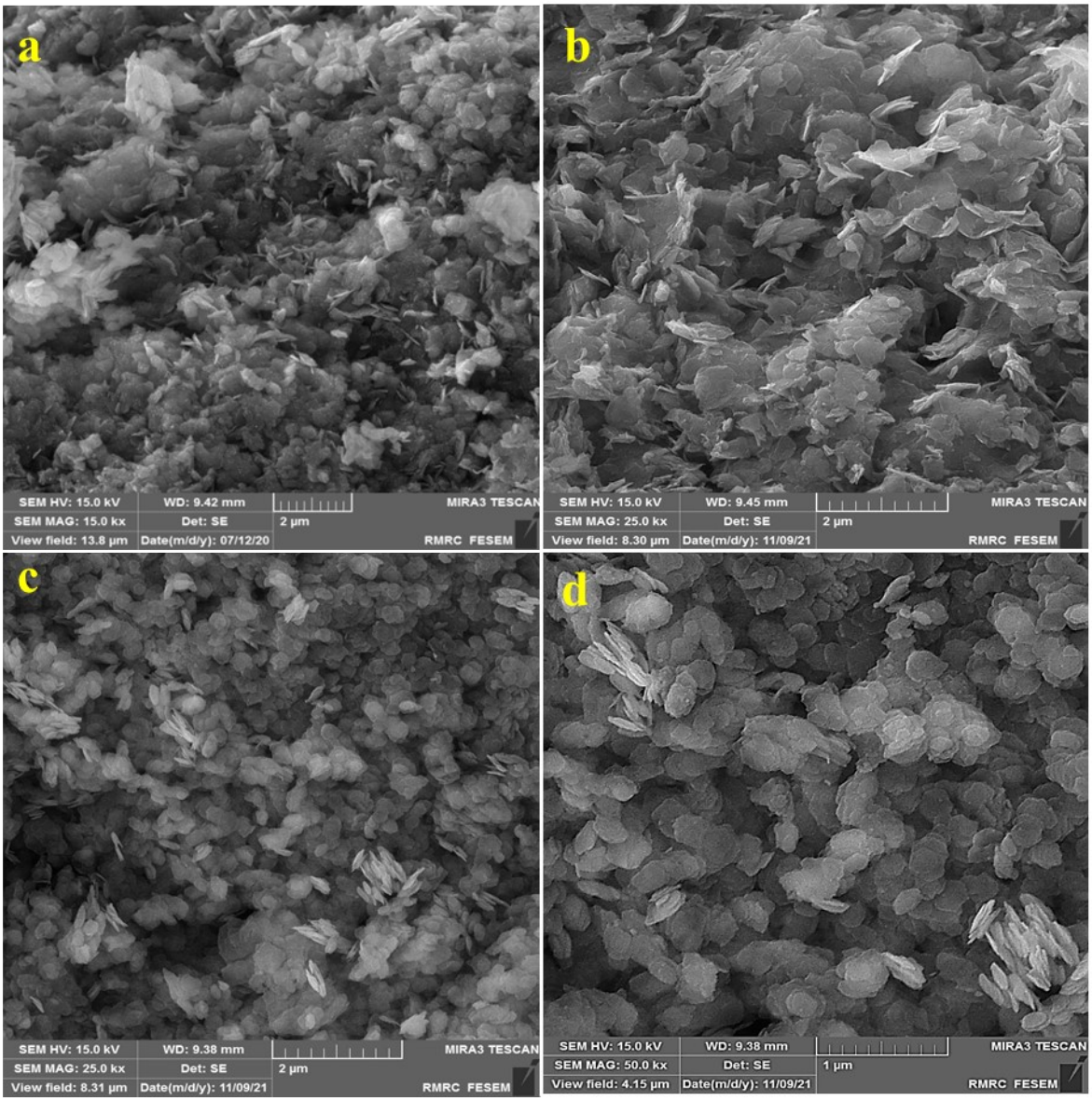

Fig. S1. FE-SEM images of NiCo-P NDs (a), NiCo-S NDs (b), and NiCo-Se NDs (c,d).

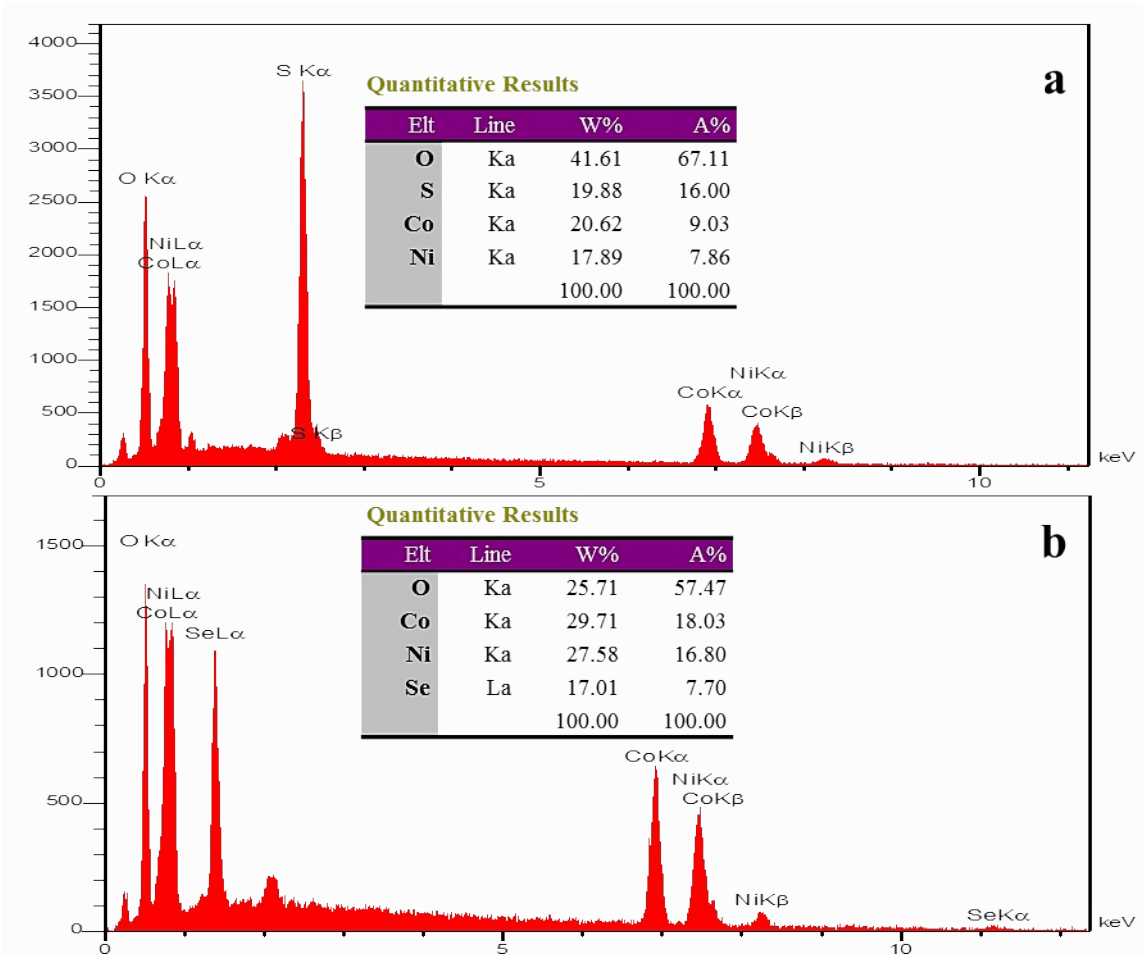

Fig. S2. The EDX spectrum of (a) NiCo-S NDs, (b) NiCo-Se NDs nanostructure samples

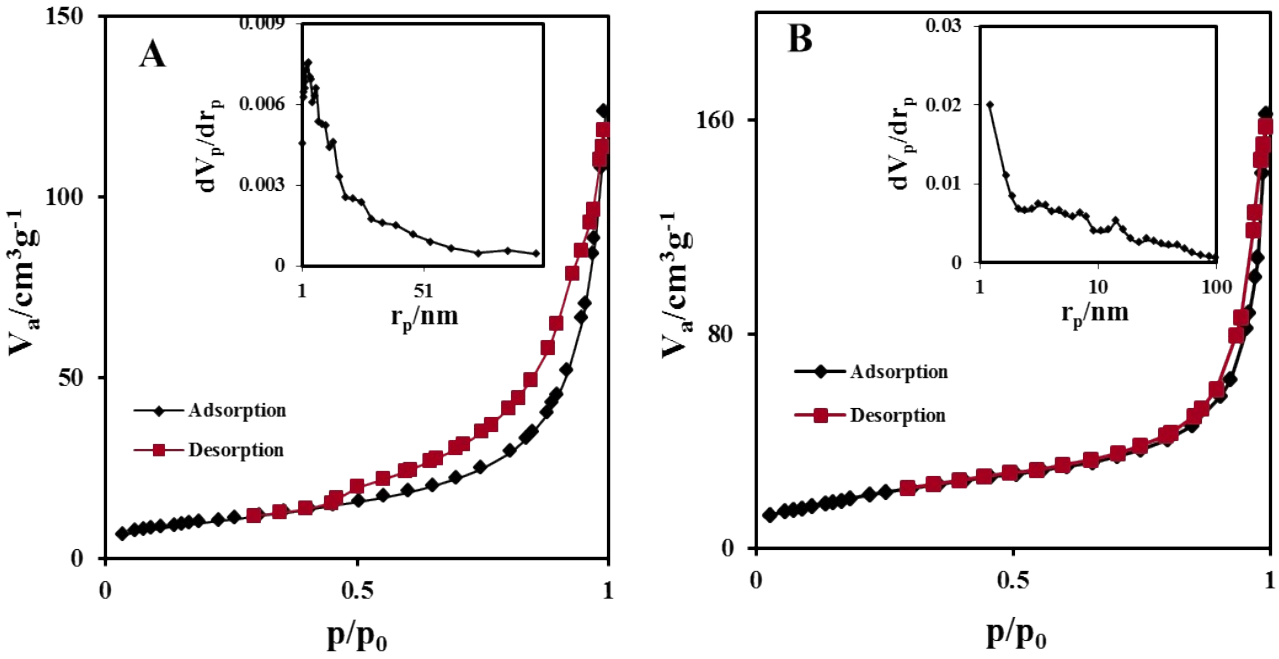

Fig. S3. The obtained N_2 adsorption-desorption isotherms of (A) NiCo-S NDs, and (B) NiCo-Se NDs; (inset: related BJH pore-size distribution curve of nanodiscs)

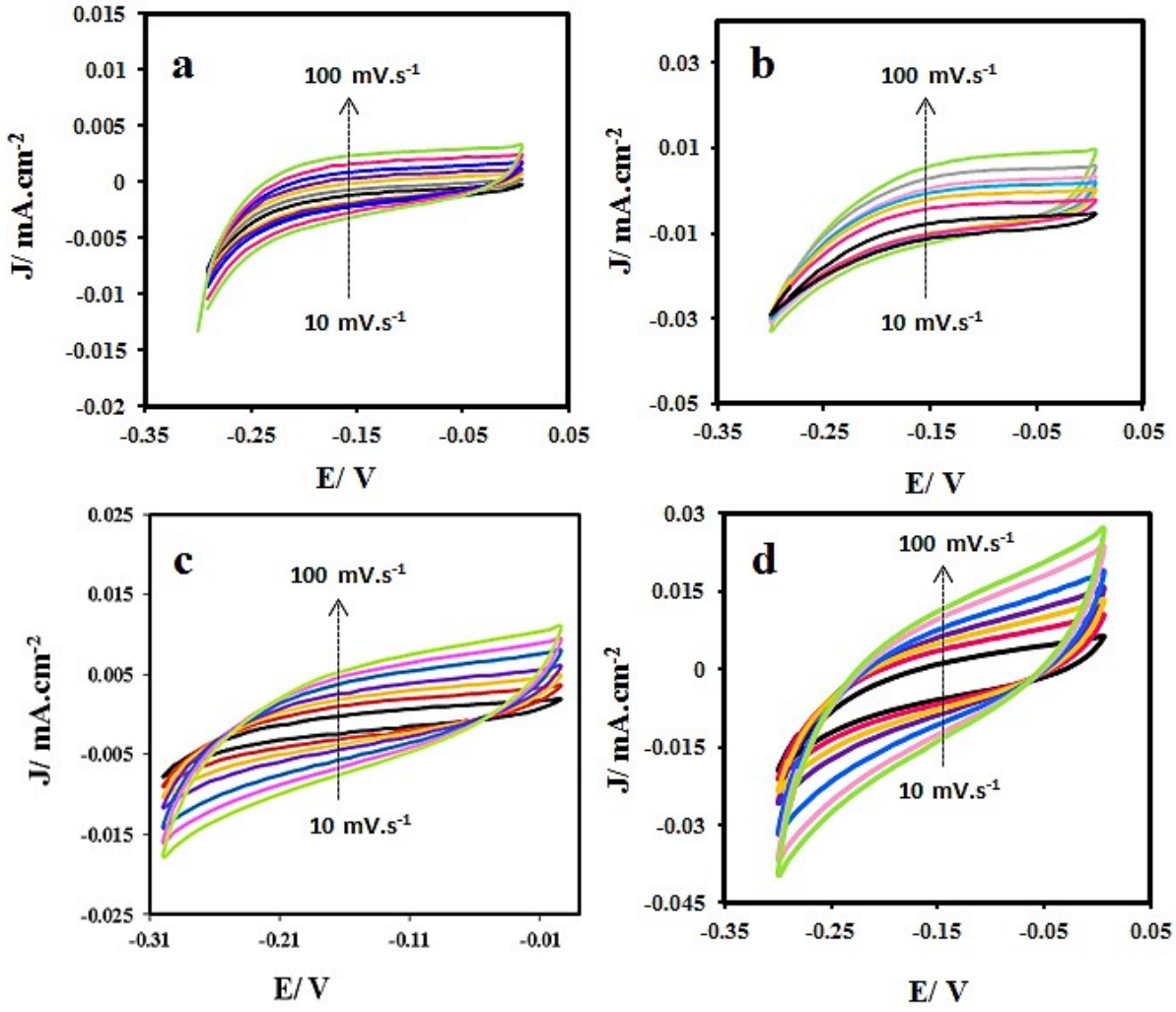

Fig. S4. The CV responses of the NiCo-OHNDs/GCE (a), NiCo-SNDs/GCE (b), NiCo-PNDs/GCE (c), and NiCo-SeNDs/GCE (d), at scan rates of 10-100 $mV.s^{-1}$ in a potential window without faradaic process.

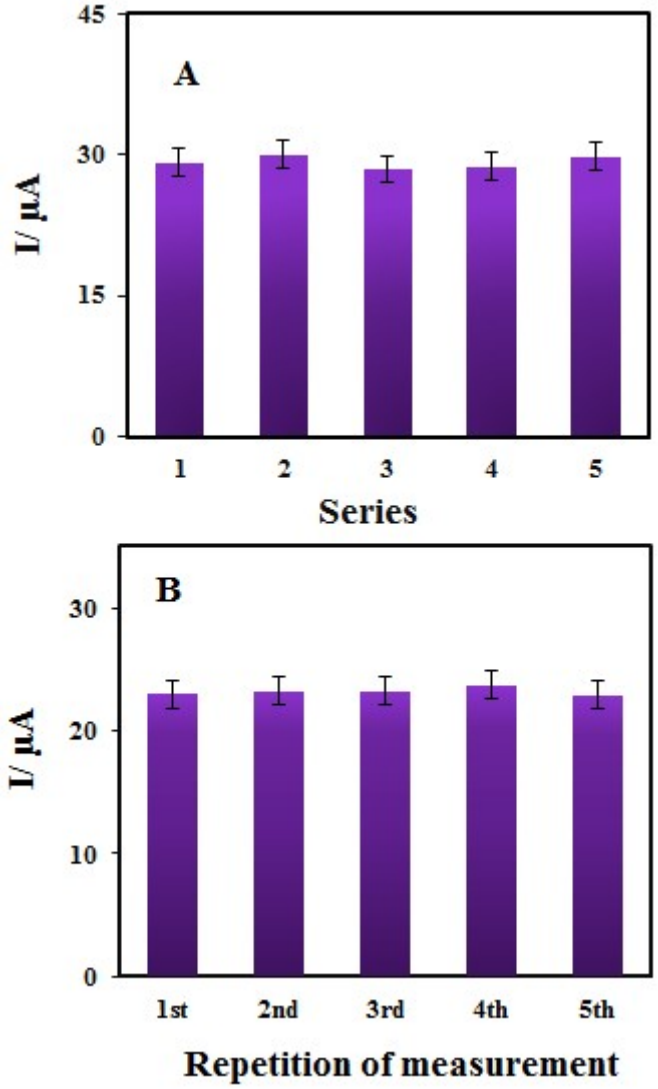

Fig. S5. The bar charts: (A) the results of the five identically fabricated NiCo-SeNDs/GCE with IPN (100µM), (B) Five repetitive IPN (75 µM) amperometric measurements with one NiCo-SeNDs/GCE

Table S1. Comparison of the previously reported electrochemical sensor for IP detection

Modified Electrode	Linear Range (µM)	Detection Limit (µM)	Reference
DHPB[a]/MWCNTs[b]/CPE[c]	0.3- 125	0.1	[1]
HG[d]/GCE[e]	1- 800	0.5	[2]
CuHCF[f]/CPE	196- 1070	80	[3]
AuNPs-DAT[g]/GCE	1–1500	0.46	[4]
GZO@GO[h]/GCE	0.02–122.1	0.003	[5]
DMD[i]-AuNPs[j]/GCE	0.5- 800	0.21	[6]
(P)DNA[k]/GCE	0.16	2-60	[7]
CuNPs-GO-CB-PEDOT:PSS[l]/GCE	8- 50	1.9	[8]
CD-TM[m]/CPE	0.5- 1000	0.47	[9]
NiCo-PNDs@NiCo-OH[n]/GCE	0.5- 2110	0.17	[10]
NiCo-SeNDs/GCE	0.5-750	0.16	This study

[a] N-(3,4-dihydroxyphenethyl)-3,5- dinitrobenzamide
[b] Multiwall carbon nanotubes
[c] Carbon paste electrode
[d] Hematoxylin and graphene
[e] Glassy carbon electrode
[f] Copper(II) hexacyanoferrate (III)
[g] 3,4-dihydroxyphenyl-azo-2-thiophenol
[h] Gadolinia doped zinc oxide/ graphene oxide
[i] 5-(1,3-dithiolan-2-eyl)-3-methyl banzen-1,2-diol
[j] Gold nanoparticles
[k] poly(1-methylpyrrole)-DNA
[l] Copper nanoparticles- grahene oxide- carbon black- (3,4 ethylenedioxythiophene)-poly (styrenesulfonate)
[m] (E)-2-((2-chlorophenylimino) methyl) benzene-1,4- diol and TiO_2 nanoparticles
[n] NiCo-P nanodiscs shelled with NiCo-LDH nanosheets

References

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